



SIMTEK6241

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of: Tadashi Takano

App. No.: 09/787299

Filed: March 15, 2001

Title: ROTATING ELECTRICAL  
MACHINE

Art Unit: 2834

Conf. No: 8159

I hereby certify that this correspondence and all marked  
attachments are being deposited with the United States  
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D.C. 20231 on:

December 16, 2002

Date

Ernest A. Beutler Reg. No. 19901

TRANSMITTAL OF APPEAL BRIEF

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

In response to the Office Action dated November 8, 2002, Appellant's hereby elects to proceed with the previously filed appeal. Enclosed herewith are one (1) original and two (2) copies of Appellant's New Appeal Brief responding to the rejections in the Office Action of November 8, 2002. Please transmit this case to the Board for redocketing.

It is believed that no additional fees are required. If Appellant's attorney is somehow incorrect in this belief, please charge our Deposit Account No. 50-1164 for any fees that may be due. A duplicate copy of this letter is enclosed for such purposes.

Respectfully submitted,

Ernest A. Beutler  
Registration No: 19901  
500 Newport Center Drive  
Suite 945  
Newport Beach, Ca 92660  
(949) 717-4821 Pacific Time



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TECHNOLOGY CENTER 2800

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
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Appellants: Tadashi Takano  
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Title: ROTATING ELECTRICAL  
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Conf. No: 8159

**APPEAL BRIEF**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

**RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences the outcome of which would have a bearing on this appeal or which would be affected by the decision in this appeal.

**REAL PARTY IN INTEREST**

In addition to the inventor, the real party in interest is his assignee, Kabushiki Kaisha Moric.

**STATUS OF CLAIMS**

Claims 1 through 6, the only claims in this application are all on appeal before the Board. A clean copy of these claims appears in the Appendix.

**STATUS OF AMENDMENTS**

This case was on appeal and after the filing of Appellant's Brief on September 23, 2002 the Examiner reopened prosecution and repeated the previously appealed rejections and added a new series of rejections based on a newly cited reference. Those rejections were not made final.

However since this case has been twice rejected and since the Examiner himself has indicated that the appeal can be reinstated, Appellant has decided to proceed with the appeal based on this new brief. No amendment has been filed subsequent to the new rejection and hence, the claims before the Board are the claims as rejected.

### **ISSUES BEFORE THE BOARD**

The issues before the Board are:

1. Whether the subject matter of Claims 1 and 4 through 6 are anticipated under 35 U.S.C. 102(b) on Grundl et al 5723933 and
2. Whether the subject matter of Claim 2 is obvious under 35 U.S.C. 103(a) on Grundl et al in combination with Tolmie Jr. 4988905 and
3. Whether the subject matter of Claim 3 is obvious under 35 U.S.C. 103(a) on the combination of Grundle et al in view of Kim 5866962 and
4. Whether the subject matter of Claims 1 and 4 through 6 is obvious under 35 U.S.C. 103(b) on Andrus 2,469, 099 in combination with Takahashi et al 5,258,680 and
5. Whether the subject matter of Claim 2 is obvious under 35 U.S.C. 103(a) on Andrus Takahashi et al combination applied against Claims 1 and 4 through 6 in further combination with Tolmie Jr. and
6. Whether the subject matter of Claim 3 is obvious under 35 U.S.C. 103(a) on Andrus Takahashi et al combination applied against Claims 1 and 4 through 6 in further combination with Kim 5866962.

### **GROUPING OF THE CLAIMS**

The only claims which stand or fall together are Claims 1 and 4 and Claims 5 and 6. The patentability of these groupings and the remaining claims will be argued separately.

### **APPELLANT'S INVENTION**

Appellant's invention relates to an improved winding for the magnetic cores of a rotating electrical machine such as a motor or generator.

Specifically the invention relates to the use of a stranded wire winding which is wound around the cores so as to improve the density of the winding. Although this can be accomplished

by using a single, very thick wire, such wires are difficult to wind. Where thin diameter plural wires have been wound around the core, the windings become difficult and the resistance values differ through out the thickness of the winding.

Therefore, the inventor has discovered that by using a plurality of stranded cables as the winding, it is possible to easily make the winding, have it be consistent and also to provide good electrical efficiency.

The construction of the embodiment is disclosed in the specification under the heading appearing at Page 5 of the original filing entitled "Best Forms of Embodying the Invention" and carrying through the end of the specification, which makes reference to the accompanying drawings.

### **APPELLANT'S ARGUMENTS**

At the outset, it must be admitted that Appellant's invention may look quick simple in retrospect. However, rather than indicating that this makes the invention unpatentable, it is most respectfully submitted that the simplicity of Appellant's invention is what makes it patentable rather than obvious or anticipated by the art.

In the background of the invention as stated in the specification at the first two full paragraphs appearing on page 2 of the translated specification and as repeated in the foregoing description of Appellant's invention, the use of plural thin parallel wires for coil winding has been well known in the art. However, this structure has the disadvantages as noted therein.

That is, the tensile forces of the wires becomes unequal when the wires are wound in plural turns and as the winding diameter increases the resistance values are different between the inside and outside turns. Thus, Appellant's invention deals primarily with the use of twisted strains of wires and the new reference which the Examiner has applied against the claims is exactly the structure shown which Appellant has admitted as old. That is, this reference does not show twisted strains of wire, but rather parallel strains that have the defects aforementioned.

The rejection of Claims 1 and 4 through 6 on Grundl et al is under 35 U.S.C. 102(b). Therefore, in order to determine if this rejection can be sustained, the Board need only consider the claim wording and determine if it literally reads upon the reference. It is submitted that it does not.

The feature which distinguishes Claim 1 over the Grundl et al reference is the fact that

Appellant's invention relates to a method of winding a coil upon core tooth elements. The Grundl et al reference, on the other hand, is directed toward a stator which is coreless and which comprises a plurality of rigid wire coils that are embedded in a resinous material to form a rigid structure. The types of machines are quite different even though they may have the same ultimate purpose.

In his rejection, the Examiner admits that Grundl does not show a core but rather refers to air cores which is a fiction that exists only in the Examiner's mind and emphasizes the fact that Grundl does not even address the problem of winding around core teeth. Although the claim language is brief, it is nevertheless complete because it clearly calls for the wires to be wound around cores.

Appellant's invention, as discussed in the "Summary of the Invention" section above, relates to an improved method for winding coils on armature poles wherein the windings are formed by stranded wires to as to permit ease of winding and high flux density. The Grundl et al reference, on the other hand, is employed to form a self-supporting, rigid stator coil that is made of a conductive stranded wire and which is desired to be very rigid and thus, does not have the flexibility to permit winding around a core. Rather, the rigid wires are bent into a coil shape and then are further reinforced by embedding the entire structure in a resin.

Thus, although the structures may look similar and appear similar in retrospect, the purposes and structures of the coils are entirely different. Appellant's desire to provide a relatively flexible winding that can be easily wound around a core while Grundl is looking for a rigid structure and is not at all concerned with how the winding is formed other than it must be rigid and it is not wound around anything.

Therefore, it is most respectfully submitted that the rejection under 35 U.S.C 102(b) must be reversed because the reference lacks the core around which the wires are wound.

Claim 4 stands or falls with Claim 1 as noted above.

Claims 5 and 6 depend upon Claim 1 and further distinguish over the Grundl et al reference in calling for an insulating coating to encircle the enameled wires of the strand and the strands thereof for retaining the stranded wires in position both during and after winding. It may seem like a minor point, but the Grundl et al reference really does not disclose the nature of his stranded wires other than to call for them to be stranded. It appears that these stranded wires are enclosed within a protective covering which appears in FIG. 2 where the lead line from the

reference numeral 38 extends. What this material is not known nor is it described. However, the entire assembly then contained within an insulating coating which is the block of material 32 in which the rigid coils are retained.

Contrast this with Appellant's construction shown in detail in FIG. 7 wherein the individual wires are indicated at 15a, their enameled coatings at 15b and the encircling insulating coating being indicated at 15c. This encircles, as Claim 5 clearly calls for, the enameled wires and the strand thereof. Technically, the Grundl et al bonding or plastic material does not encircle the wires but rather encircles an already encased strand of wires. Hence, there is a possibility of slippage, but this is immaterial to Grundl et al because Grundl et al is directed toward an entirely different type of structure. That is, Grundl et al is not concerned with being able to wind his coils around a core but rather to embed the already wound, rigid coils in an insulating material to provide additional rigidity.

Claim 2 is rejected under 35 U.S.C. 103 on the combination of Grundl et al in view of Tolmie. It is not admitted that Grundl et al shows the basic combination called for and although Tolmie shows a brushless encoder assembly, this is in conjunction with an un-illustrated winding arrangement which may or may not be the same as Grundl et al. Further, it should be noted that Grundl et al does not illustrate how the electrical current is delivered to or extracted from their windings and it is submitted that it is mere speculation that this is an arrangement that could be mounted in a housing as shown in Tolmie.

Claim 3 is similar to Claim 2 but calls for the encoder to be positioned inside the housing rather than outside the housing. Therefore, the Examiner has relied upon a different secondary reference, this being Kim. Again, however, it is submitted that it is pure speculation as to whether or not Grundl et al's structure could be utilized in Kim's environment because Grundl et al does not teach anything about how electrical current is transmitted to or from the windings.

Apparently, recognizing the weakness of his rejections based upon Grundl, the Examiner has chosen to reopen prosecution in this case and now basis additional rejections on the combination of Andrus with Takahashi et al. Rather than strengthening the Examiner's position, however, it is believed that this further indicates the weakness of the Examiner's position and emphasizes the fact that Appellant's invention is a true invention and is elegant in its simplicity.

Andrus shows an arrangement for forming coils from strands of parallel wires. Thus, this reference does not show the twisted strands that are clearly called out in the claims.

Furthermore, the Takahashi et al reference, which the Examiner proposes to utilize for a teaching for winding around cores, itself lacks cores and itself uses parallel strands. Hence, it is submitted that this desperate combination resorted to be the Examiner is further evidence that Appellant's claimed structure is patentable rather than obvious.


Even if the Andrus/Takahashi et al combination were to be made and it is submitted that this combination is not one which would be obvious to one skilled in the art, the resulting structure would have plural strands of parallel wires, something that Appellant has clearly disclaimed in calling for the twisted strands.

Furthermore, this combination would not result in utilization of cores because the Takahashi et al reference specifically avoids core. Andrus, on the other hand, shows no detail of his windings if there are in fact windings around core teeth at all. Thus, it is submitted that the Examiner is desperately attempting to build Appellant's invention which is claimed in very few words from bits and pieces of the prior art with no suggestion in the art that a combination would be obvious.

In addition to this basic defect of the Andrus/Takahashi et al combination, the dependent claims as argued above with respect to the rejections based upon Grundl et al alone i.e. Claims 2 and 3, still further distinguish over the combination of these secondary references with the combined Andrus/Takahashi et al combination for the reasons aforementioned.

In view of the foregoing, it is submitted that although Appellant's invention and the prior art may look somewhat similar, they are directed toward totally different structures and, therefore, the claims are not readable upon the basic reference for the reasons noted above and rejections based upon either Grundl alone or in combination and upon the Andrus, Takahashi et al combination should be reversed. Such action is most courteously solicited.

Respectfully submitted,



Ernest A. Beutler  
Registration No: 19901  
500 Newport Center Drive  
Suite 945  
Newport Beach, Ca 92660  
(949) 717-4821 Pacific Time

## APPENDIX

### Claims on Appeal

1. A rotary electric apparatus comprising a first element having a permanent magnet, and a second element with magnet wires wound around cores, said first and said second elements being supported for relative rotation, said magnet wires comprising plural enameled wires twisted together to form a stranded cable that is subsequently wound around said cores.
2. A rotary electric apparatus as recited in claim 1, characterized in that; the first and said second elements are placed within a casing, the first element comprises a rotor supported for rotation with said casing, said second element comprising a stator is fixed to said casing, and further comprising an encoder for acquiring control signals is provided on the outside of said casing.
3. A rotary electric apparatus as recited in claim 1, characterized in that; the first and said second elements are placed within a casing, the first element comprises a rotor supported for rotation with the casing, said second element comprising a stator is fixed to said casing, and an encoder for acquiring control signals is provided on the inside of said casing.
4. A rotary electric apparatus as recited in claim 1, further including outlet wires constituted as stranded wires associated with the magnet wires.
5. A rotary electric apparatus as recited in claim 1 further including an insulating coating encircling the enameled wires and the strand thereof for further retaining the stranded wires in position after the winding.
6. A rotary electric apparatus as recited in claim 5 wherein the insulating coating comprises a plastic material.